

CLAIM AMENDMENTS

Amend claims: 3-10

1. (Original) A process for the removal of H₂S and mercaptans from a gas stream comprising these compounds, which process comprises the steps of:
 - (a) removing H₂S from the gas stream by contacting the gas stream in a H₂S-removal zone with a first aqueous alkaline washing liquid to obtain a H₂S-depleted gas stream and a sulphide-comprising aqueous stream;
 - (b) removing mercaptans from the H₂S-depleted gas stream obtained in step (a) by contacting the H₂S-depleted gas stream in a mercaptan-removal zone with a second aqueous alkaline washing liquid to obtain a mercaptan-depleted gas stream and an thiolate-comprising aqueous stream;
 - (c) contacting the combined aqueous streams comprising sulphide and thiolates obtained in step (a) and step (b) with sulphide-oxidizing bacteria in the presence of oxygen in an oxidation reactor to obtain a sulphur slurry and a regenerated aqueous alkaline washing liquid;
 - (d) separating at least part of the sulphur slurry obtained in step (c) from the regenerated aqueous alkaline washing liquid; and
 - (e) recycling the regenerated aqueous alkaline washing liquid to the H₂S-removal zone in step (a) and to the mercaptan-removal zone in step (b).
2. (Original) A process according to claim 1, wherein the regenerated alkaline washing liquid is recycled from the oxidation reactor to the H₂S-removal zone in step (a) and to the mercaptan-removal zone in step (b).
3. (Currently Amended) A process according to claim 1 or 2, wherein the washing liquid in step (a) is buffered, ~~preferably at a pH of between 4.5 and 10, more preferably at a pH between 5.5 and 9.~~

4. (Currently Amended) A process according to ~~any one of claims 1 to 3~~, wherein the washing liquid in step (b) is buffered, ~~preferably at a pH of between 5.5 and 10, more preferably at a pH between 6.5 and 9.~~
5. (Currently Amended) A process according to ~~any one of claims 1 to 4~~, wherein the contents of the oxidation reactor in step (c) is buffered, ~~preferably at a pH between 5.5 and 10, more preferably between 6.5 and 9.~~
6. (Currently Amended) A process according to ~~any one of claims 1 to 5~~, wherein the H₂S concentration of the gas stream entering the H₂S-removal zone in step (a) is between 50 ppmv and 90 vol%, ~~preferably between 100 ppmv and 70 vol%, more preferably between 150 ppmv and 50 vol%.~~
7. (Currently Amended) A process according to ~~any one of claims 1 to 6~~, wherein the H₂S concentration of the mercaptan-depleted gas stream is less than 10 ppmv, especially between 0.01 and 10 ppmv, ~~preferably between 0.05 and 3.5 ppmv, more preferably between 0.1 and 1 ppmv, based on the total mercaptan-depleted gas stream.~~
8. (Currently Amended) A process according to ~~any one of claims 1 to 7~~, wherein the concentration of mercaptan compounds in the mercaptan-depleted gas stream is less than 6 ppmv, ~~preferably less than 4 ppmv, more preferably less than 2 ppmv, based on the total mercaptan-depleted gas stream.~~
9. (Currently Amended) A gas-treating unit for the removal of H₂S and mercaptans from a gas stream comprising these compounds, ~~in a process according to claim 2~~, the gas treating unit comprising at least two gas scrubbers with inlets and outlets, at least one oxidation reactor with inlets and outlets and a solid/liquid separator with an inlet and outlets, the first gas scrubber having a discharge line for gas debouching into the inlet of the second gas scrubber, the first and the second gas scrubbers both having a discharge line for liquid debouching into the oxidation reactor, ~~optionally via a first and a second flash vessel, respectively~~, the oxidation reactor having an outlet debouching into the inlet of the

solid/liquid separator, an outlet for liquid debouching into the inlets of the first gas scrubber and the second gas scrubber.

10. (Currently Amended) A ~~section~~ gas treating unit according to claim 9, wherein the first and the second gas scrubber are placed on top of each other in one vessel.